Al-Hilal: Journal of Islamic Astronomy
Vol. 08, No. 01, April 2026: 87-100
DOI: 10.21580/al-hilal.2026.8.1.30028
ISSN: 2775-1236 (printed); 2775-2119 (online)

Astronomical Verification of the Prophet Muhammad's Birth Date: Revisiting the *Surakarta* Palace *Senin Pon* Tradition

Purwanto Purwanto[1]*, Sayful Mujab[2]

[1] Al-Aqrob Falak Community Jepara, Indonesia
[2] Universitas Islam Negeri Sunan Kudus, Indonesia
* Corresponding Author, Email: purwanto@gmail.com

Submitted: 10-12-2025 | *Revised:08-02-2026* | *Accepted: 03-04-2026* | *Published: 30-04-2026*

Abstract

The Surakarta Palace preserves a long-standing tradition that associates the birth of Prophet Muhammad with Monday *Pon* (*Senin Pon*) in the *Dal* year cycle, forming the basis of the *Grebeg Mulud* commemoration. Despite its cultural significance, the historical and astronomical foundations of this tradition have received limited scholarly attention. This study examines the relationship between the *Surakarta* Palace *Senin Pon* tradition, classical Islamic historiography, and astronomical chronology. Employing a qualitative library research design, the study integrates historiographical analysis, cultural-textual analysis of Javanese calendrical manuscripts, and astronomical reconstruction based on contemporary ephemeris calculations. The findings indicate that while the Monday birth of the Prophet is widely supported by classical sources, the reconstructed chronology of *Rabīʿ al-Awwal* in the Year of the Elephant suggests that Monday corresponded more plausibly to the 10th rather than the 12th of *Rabīʿ al-Awwal*. Nevertheless, the persistence of the *Senin Pon* tradition reflects the role of the Javanese calendar in preserving sacred historical memory through ritual continuity and cultural transmission. This study contributes to Islamic astronomy by integrating historical astronomy, Islamic historiography, and Javanese calendrical traditions within a single analytical framework.

Keywords: prophet Muhammad's birth, *Senin Pon* tradition, *Surakarta* Palace, Javanese calendar.

***

Keraton Surakarta mempertahankan tradisi yang mengaitkan kelahiran Nabi Muhammad saw. dengan hari Senin *Pon* pada siklus tahun *Dal*, yang menjadi dasar pelaksanaan perayaan *Grebeg Mulud*. Meskipun memiliki signifikansi budaya yang kuat, landasan historis dan astronomis tradisi tersebut masih jarang dikaji secara akademik. Penelitian ini bertujuan mengkaji hubungan antara tradisi Senin *Pon* Keraton Surakarta, historiografi Islam klasik, dan kronologi astronomis. Penelitian menggunakan pendekatan kualitatif berbasis studi pustaka dengan mengintegrasikan analisis historiografi, analisis tekstual terhadap manuskrip kalender Jawa, serta rekonstruksi astronomis menggunakan data ephemeris kontemporer. Hasil penelitian menunjukkan bahwa meskipun hari kelahiran Nabi pada hari Senin memperoleh dukungan kuat dari sumber-sumber klasik, rekonstruksi kronologi *Rabīʿ al-Awwal* Tahun *Gajah* menunjukkan bahwa hari Senin lebih mungkin bertepatan dengan tanggal 10 daripada 12 *Rabīʿ al-Awwal*. Namun demikian, keberlangsungan tradisi Senin *Pon* menunjukkan fungsi kalender Jawa sebagai sarana pelestarian memori sejarah sakral melalui kesinambungan ritual dan transmisi budaya. Penelitian ini berkontribusi pada pengembangan ilmu falak dengan mengintegrasikan astronomi historis, historiografi Islam, dan tradisi kalender Jawa dalam satu kerangka analisis.

Kata Kunci: kelahiran Nabi Muhammad, tradisi Senin *Pon*, Keraton Surakarta, Kalender Jawa.

To cite this article (Chicago Manual of Style 17th Edition Full-Note):
Purwanto Purwanto and Sayful Mujab, "Astronomical Verification of the Prophet Muhammad's Birth Date: Revisiting the *Surakarta* Palace *Senin Pon* Tradition", *Al-Hilal: Journal of Islamic Astronomy*, Vol. 8, No. 1 (2026): 87-100.

A. Introduction

The birth of Prophet Muhammad occupies a central position in Islamic historical memory, devotional practice, and *ritual* culture throughout the Muslim world. Beyond its theological significance, the commemoration of the Prophet's birth (*maulid al-nabī*) has evolved into a complex religious and cultural phenomenon shaped by local traditions, political authority, and calendrical systems. In many Muslim societies, the Prophet's birthday is not merely understood as a historical event, but also functions as a sacred temporal marker through which communities construct religious identity, collective memory, and ritual continuity. Marion Holmes Katz demonstrates that *maulid* traditions historically developed not only as devotional expressions, but also as forms of popular piety deeply connected to social imagination and religious authority.[1]

In the Javanese context, the commemoration of the Prophet's birth underwent a significant process of cultural adaptation through the integration of Islamic teachings and local cosmological traditions. One of the most enduring manifestations of this process is the *Grebeg Mulud* tradition preserved within the *Surakarta* Palace (*Keraton Surakarta Hadiningrat*). As a royal Islamic ritual, *Grebeg Mulud* represents not only a celebration of the Prophet's birthday, but also a mechanism for preserving sacred kingship, ritual legitimacy, and Javanese Islamic identity.[2] The ceremony is fundamentally connected to the Javanese Islamic calendar system, particularly the cyclical concepts of *windu*, *kurup*, and *pasaran*, which combine lunar calculation with older Javanese temporal cosmology.[3]

Within the *Surakarta* court tradition, it is widely believed that Prophet Muhammad was born on Monday *Pon* (*Senin Pon*) during the *Dal* year cycle. This belief serves as the basis for determining the ritual timing of *Grebeg Mulud*, especially in the *Dal* cycle celebrated every eight years. The tradition is explicitly preserved in Javanese calendrical manuscripts such as *Primbon Qomarulsyamsi Adamakna*, which explains modifications in the arrangement of Javanese lunar months to ensure that the 12th of *Mulud* consistently falls on Monday *Pon*.[4] However, although this tradition has strong cultural legitimacy within the palace context, its historical and astronomical foundations remain insufficiently examined in contemporary scholarship.

The debate concerning the exact birth date of Prophet Muhammad has long existed within classical Islamic historiography. Muslim historians and hadith scholars proposed various dates, including the 8th, 9th, 10th, and 12th of *Rabī' al-Awwal*. Recent studies have shown that the popular acceptance of the 12th *Rabī' al-Awwal* tradition is influenced not only by historical transmission but also by devotional and socio-political developments within *Sunni Islam*.[5] Although the Prophet's birth on Monday is widely accepted in hadith literature, disagreement

[1] Marion Holmes Katz, *The Birth of the Prophet Muhammad Devotional Piety in Sunni Islam* (London and New York: Routledge, 2007), 1–11.

[2] Ahmad Adib and Kundharu Saddhono, "Paradigma Budaya Islam- Jawa Dalam Gerebeg Maulud Kraton Surakarta," *Al Qalam: Jurnal Kajian Keislaman* 35, no. 2 (December 31, 2018): 271–96, https://doi.org/10.32678/alqalam.v35i2.1081.

[3] Yumna Mahmudah and Ahmad Izzuddin, "Kalender Jawa Islam Menurut Ronggowasito Dalam Serat Widya Pradhana," *AL-AFAQ: Jurnal Ilmu Falak Dan Astronomi* 5, no. 1 (June 21, 2023): 90–100, https://doi.org/10.20414/afaq.v5i1.6937.

[4] Harya Tjakraningrat, *Kitab Primbon Qomarul Syamsi Adamakna* (Solo: Buana Raya, 1965), 35.

[5] Muhammad Kharis, "Comparative Study Between Ḥadīth And Sirah Nabawiyyah Regarding the Birth of The Prophet Muhammad," *AL ISNAD: Journal of Indonesian Hadith Studies* 5, no. 2 (January 17, 2025): 76–88, https://doi.org/10.51875/alisnad.v5i2.509.

regarding the exact date remains unresolved. This historiographical plurality raises important questions regarding the relationship between religious tradition, historical narration, and calendrical reconstruction.[6]

At the same time, advances in contemporary astronomy provide new possibilities for reconstructing early Islamic chronology through ephemeris-based calculations. Historical-astronomical studies have increasingly demonstrated that important events in Islamic history may be re-examined through lunar visibility analysis, conjunction calculations, and calendrical reconstruction.[7] The integration of astronomy and historical inquiry is particularly important because many early Islamic historical narratives are closely connected to lunar chronology and observational calendrical systems. In the broader intellectual history of Islam, astronomical and astrological calculations were historically used not only for scientific observation but also for interpreting major political and religious events.[8]

Despite the growing scholarship on *maulid* traditions, Javanese Islamic calendars, and historical astronomy, studies integrating these three dimensions remain extremely limited. Previous studies on *Grebeg Mulud* primarily focus on cultural acculturation, symbolic meaning, and ritual preservation, while studies on the Prophet's birth generally emphasize either historiographical debates or devotional traditions. Similarly, astronomical studies concerning the Prophet's birth remain largely technical and disconnected from local Islamic ritual traditions. Consequently, there has been little scholarly attention devoted to examining how local sacred traditions, such as the Surakarta Senin Pon narrative, interact with historical and astronomical reconstruction.

This article seeks to fill that gap by reconstructing the chronology of *Rabīʿ al-Awwal* in the Year of the Elephant through contemporary astronomical calculation while simultaneously examining the cultural logic underlying the Surakarta Palace tradition. By integrating Islamic historiography, Javanese calendrical studies, and astronomical reconstruction, this study argues that the *Senin Pon* tradition reflects an important form of Javanese Islamic sacred memory, although its astronomical reconstruction indicates a different chronological possibility. Rather than positioning astronomy against tradition, this article aims to explore how scientific calculation and sacred cultural memory negotiate authority in the construction of Islamic historical consciousness.

This study contributes to the growing field of Islamic astronomy (*'ilm al-falak*) by expanding astronomical analysis beyond technical calendrical calculation into the broader domains of cultural history and religious memory. Furthermore, it contributes to discussions on cultural astronomy by demonstrating how astronomical concepts are embedded within local Islamic ritual systems and royal traditions in Java.

---

[6] Nūr al-Dīn 'Alī Al-Ḥalabi, *Al-Sīrah Al-Ḥalabiyyah* (Yordania: Turast Publishing, 2013), 81–82.

[7] Anisah Budiwati, "Historical-Astronomic Provision Of Birth And Death Prophet Muhammad Saw," *Al-Hilal: Journal of Islamic Astronomy* 1, no. 1 (April 30, 2019): 1–20, https://doi.org/10.21580/al-hilal.2019.1.1.5188.

[8] Edward S. Kennedy, "Al-Battānī's Astrological History of the Prophet and the Early Caliphate," *Suhayl. Journal for the History of the Exact and Natural Sciences in Islamic Civilisation* 9 (2009): 13–148.

B. Method

This study employs a qualitative library research design integrating Islamic historiography, cultural studies, and contemporary astronomical calculation. The research focuses on the *Surakarta* Palace tradition which states that Prophet Muhammad was born on Monday *Pon* (*Senin Pon*) during the *Dal* year cycle. Primary data sources consist of Javanese calendrical manuscripts, particularly *Primbon Qomarulsyamsi Adamakna*, official narratives of the *Surakarta* Palace, classical Islamic historiographical works discussing the Prophet's birth, and astronomical ephemeris data used to reconstruct lunar chronology in the Year of the Elephant. Secondary sources include scholarly books, journal articles, and previous studies concerning *maulid* traditions, Javanese Islamic calendars, and historical astronomy.

The analysis was conducted in three stages. First, historiographical analysis was used to examine classical Islamic narrations regarding the date and day of the Prophet Muhammad's birth, particularly debates surrounding the 12th of *Rabīʿ al-Awwal*. Second, cultural-textual analysis was employed to understand the calendrical structure and symbolic meaning of the *Senin Pon* tradition within the *Surakarta* Palace *ritual* system. Third, astronomical reconstruction was performed using ephemeris-based *ḥisab* calculations to determine the conjunction (*ijtimāʿ*), crescent visibility, and the beginning of *Rabīʿ al-Awwal* in 571 CE. The findings from historical sources, palace traditions, and astronomical calculations were comparatively analyzed through source triangulation to evaluate the historical and astronomical validity of the *Surakarta* Palace *Senin Pon* tradition.

C. Result and Discussion

1. The Authority of Javanese Calendar Tradition in Constructing Sacred Historical Memory

The commemoration of the Prophet Muhammad's birth within the *Surakarta* Palace tradition cannot be separated from the development of the Javanese Islamic calendar. Unlike the conventional Hijri calendar used throughout most Muslim societies, the Javanese calendar represents a synthesis between Islamic lunar chronology and pre-Islamic Javanese temporal concepts. This synthesis emerged through the Islamization process in Java, where Islamic religious teachings were gradually integrated into existing cultural structures rather than replacing them entirely. Ricklefs characterizes this phenomenon as a form of "mystic synthesis," in which Islamic beliefs and Javanese cultural practices became mutually reinforcing elements of religious life.[9] Within this framework, calendrical traditions functioned not only as instruments for measuring time but also as mechanisms for preserving religious identity and cultural continuity. Consequently, major Islamic commemorations in Java, including *Grebeg Mulud*, became embedded within a distinct calendrical system that connected sacred history with local cultural expressions.

Among the annual rituals maintained by the *Surakarta* Palace, *Grebeg Mulud* occupies a particularly significant position because it commemorates the birth of Prophet Muhammad while simultaneously affirming the continuity of Javanese Islamic identity. Previous studies have shown

[9] Merle Calvin Ricklefs, *Mystic Synthesis in Java: A History of Islamization from the Fourteenth to the Early Nineteenth Centuries* (Norwalk: EastBridge, 2006), 30–45.

that *Grebeg Mulud* represents the outcome of a long process of cultural accommodation undertaken by *Muslim* rulers and religious scholars in Java. Adib argues that the tradition reflects a paradigm of Javanese Islam in which Islamic teachings are expressed through local cultural forms without losing their religious significance.[10] Likewise, Mu'azaroh identifies *Grebeg* traditions as manifestations of Hindu-Islamic acculturation that continued to evolve within Islamic society.[11] Pratisara further notes that *Grebeg Maulud* functions as a symbolic expression of Islamic-Javanese identity that continues to receive cultural legitimacy within contemporary society.[12] Rather than functioning solely as ceremonial events, these rituals serve as instruments through which historical narratives and religious values are transmitted from one generation to another. The annual repetition of *Grebeg Mulud* therefore transforms the commemoration of the Prophet's birth into a collective act of remembering that reinforces both religious devotion and cultural belonging.

The close relationship between *Grebeg Mulud* and the Javanese calendar becomes evident in the palace's effort to preserve the coincidence between the 12th of *Mulud* and the pasaran day of *Pon*. According to *Ronggowarsito*, the Javanese calendar operates through a complex interaction between lunar months, the eight-year *windu* cycle, and the longer *kurup* cycle.[13] Because calendrical discrepancies accumulate over time, adjustments periodically become necessary to maintain the consistency of ritual dates. Hambali explains that each *kurup* eventually experiences a one-day shift, requiring modifications to preserve the traditional relationship between dates and *pasaran* cycles.[14] Such adjustments demonstrate that the calendar is not merely a neutral chronological instrument but also a cultural system designed to maintain ritual continuity. In the *Surakarta* context, the preservation of Monday *Pon* became a central concern because it was directly associated with the palace's understanding of the Prophet Muhammad's birth.

The strongest evidence for this intentional preservation can be found in *Primbon Qomarulsyamsi Adamakna* written by *Kanjeng Pangeran Harya Tjakraningrat*. The manuscript explicitly records modifications in the arrangement of month lengths during the *Dal* year so that the celebration of *Grebeg Mulud* would consistently fall on Monday *Pon*.[15] The text explains that changes introduced in successive *kurup* periods were intended to ensure that the 12th of *Mulud* remained associated with the same combination of weekday and *pasaran*. Such evidence indicates that the preservation of Monday *Pon* was not an accidental consequence of calendrical calculation but rather a deliberate cultural strategy. From the perspective of cultural memory, these adjustments may be understood as mechanisms through which communities preserve meaningful representations of the past. Assmann argues that cultural memory is maintained through institutionalized forms of remembrance, including texts, rituals, and recurring commemorative

[10] Adib and Saddhono, "Paradigma Budaya Islam- Jawa Dalam Gerebeg Maulud Kraton Surakarta."

[11] Hafshah 'Abidatul Mu'azaroh, "Akulturasi Budaya Hindu-Islam Dalam Tradisi Upacara Grebeg Di Jawa," *Maliki Interdisciplinary Journal* 3, no. 2 (2025): 464–73.

[12] Devina Pratisara, "Grebeg Maulud Yogyakarta Sebagai Simbol Islam Kejawen Yang Masih Dilindungi Oleh Masyarakat Dalam Perspektif Nilai Pancasila," *Jurnal Pancasila* 1, no. 2 (2020): 14–24.

[13] Azmi Muttaqin, "Determination Of The Beginning Of Ramadhan And Syawal In Indonesia (An Overview Of Political And Historical Perspectives)," *Journal of Islamic Studies and Humanities* 7, no. 2 (2022): 131–47, https://doi.org/https://doi.org/10.21580/jish.v7i2.11882.

[14] Slamet Hambali, *Almanak Sepanjang Masa; Sejarah Sistem Penanggalan Masehi, Hijriah Dan Jawa* (Semarang: Program Pascasarjan IAIN Walisongo Semarang, 2011), 82.

[15] Tjakraningrat, *Kitab Primbon Qomarul Syamsi Adamakna*, 35.

practices that transmit collective identity across generations.[16] In this sense, the Javanese calendar itself functions as a medium of remembrance through which the memory of the Prophet's birth is continually reproduced.

The persistence of the *Senin Pon* tradition demonstrates how sacred history can be preserved through ritual and calendrical authority. The *Surakarta* Palace continues to reproduce this narrative through *Grebeg Mulud* celebrations, *Hajad Dalem* ceremonies, and official cultural publications that associate the Prophet's birth with *Senin Pon* in the *Dal* year cycle. Similar dynamics can be observed in the broader history of *maulid* celebrations throughout the Muslim world. Katz notes that commemorations of the Prophet's birth developed not only as recollections of a historical event but also as expressions of devotional piety that reinforced communal identity and religious authority.[17] Consequently, the significance of such traditions often extends beyond questions of historical accuracy. In the case of the *Surakarta* Palace, the authority of the *Senin Pon* tradition derives not primarily from historical verification but from its continued reproduction through ritual practice, calendrical regulation, and collective memory. Understanding this cultural authority is therefore essential before evaluating the historical validity of the tradition through astronomical reconstruction in the following section.

2. Historiographical Debates on the Birth Date of Prophet Muhammad

The birth of Prophet Muhammad represents one of the most celebrated events in Islamic history, yet paradoxically it remains one of the least certain in terms of chronological reconstruction. While Muslim communities throughout the world widely commemorate the Prophet's birthday on the 12th of *Rabīʿ al-Awwal*, classical Islamic sources reveal considerable disagreement concerning the exact date of his birth. Unlike the date of the Prophet's death, which is relatively well established in historical literature, reports regarding his birth were transmitted through diverse historical traditions that developed over several generations. As a result, Muslim historians and scholars proposed various dates ranging from the 2nd to the 12th of *Rabīʿ al-Awwal*. The diversity of these reports indicates that the question of the Prophet's birth date was never entirely settled within classical Islamic historiography. Consequently, contemporary discussions concerning the chronology of the Prophet's birth should not be understood as challenges to an established historical consensus but rather as part of a long-standing scholarly tradition of evaluating competing historical narratives.

Despite disagreements regarding the date, there is a stronger degree of agreement concerning the day of the week on which the Prophet was born. A widely cited hadith narrated by Abu Qatadah records that when the Prophet was asked about his practice of fasting on Mondays, he replied that Monday was the day on which he was born and the day on which revelation first descended upon him. This narration is transmitted in *Ṣaḥīḥ Muslim* and has generally been accepted by Muslim scholars as reliable evidence concerning the weekday of the Prophet's birth.[18]

[16] Jan Assmann, *Cultural Memory and Early Civilization; Writing, Remembrance, and Political Imagination* (Cambridge: Cambridge University Press, 2021), 36–55.

[17] Katz, *The Birth of the Prophet Muhammad Devotional Piety in Sunni Islam*, 1–15; Kharis, "Comparative Study Between Ḥadīth And Sirah Nabawiyyah Regarding the Birth of The Prophet Muhammad," 76–88.

[18] Muslim ibn al-Hajjaj Al-Naisaburi, *Ṣaḥīḥ Muslim* (Beirūt: Dār Iḥyāʾ al-Turāth al-ʿArabī, n.d.) hadits no. 1162.

Consequently, many classical historians accepted Monday as a relatively secure chronological marker while continuing to disagree regarding the exact date within the month of *Rabīʿ al-Awwal*. The distinction between certainty regarding the weekday and uncertainty regarding the numerical date is particularly important because it provides a historical basis for subsequent chronological reconstructions. Any proposed birth date must therefore be examined in relation to the widely accepted tradition that the Prophet was born on a Monday.

Among the various dates proposed by classical scholars, the 12th of *Rabīʿ al-Awwal* eventually became the most influential within *Sunni* devotional tradition. Historians such as Ibn Isḥāq, Ibn Hishām, and later al-Halabī transmitted reports that associated the Prophet's birth with this date, contributing to its widespread acceptance in popular religious practice. Nevertheless, other scholars preserved alternative opinions. Al-Dhahabī mentioned reports indicating the 8th of *Rabīʿ al-Awwal*, while several historians and genealogists preferred the 9th or 10th of the month. Al-Halabī himself acknowledged the existence of multiple opinions and noted the absence of complete agreement among earlier authorities.[19] The existence of these competing reports suggests that the predominance of the 12th *Rabīʿ al-Awwal* tradition cannot be explained solely through historical evidence. Rather, its popularity appears to be connected to the gradual development of devotional practices and collective religious memory surrounding the Prophet's life.

Recent scholarship has further emphasized the distinction between historical reconstruction and devotional commemoration. Katz argues that celebrations of the Prophet's birthday developed within broader traditions of Sunni devotional piety and communal remembrance rather than through the preservation of a single uncontested historical chronology.[20] In this context, the widespread observance of the 12th *Rabīʿ al-Awwal* may be understood as a product of religious culture as much as historical transmission. Similarly, contemporary studies of prophetic biography have shown that many chronological details of the Prophet's early life remain subjects of historiographical evaluation rather than established historical facts. Kharis demonstrates that a comparative examination of hadith and *sīrah* literature reveals substantial variation regarding the numerical date of the Prophet's birth while maintaining broad agreement concerning his birth on a Monday.[21] These findings indicate that historical inquiry into the Prophet's birth date remains both legitimate and necessary.

The historiographical plurality surrounding the Prophet's birth date provides the foundation for astronomical reconstruction. Since classical sources preserve multiple chronological possibilities, historical astronomy offers an additional methodological tool for evaluating which dates correspond most closely with lunar chronology in the Year of the Elephant. The purpose of astronomical analysis is not to replace historical sources but to complement them through an examination of conjunction data, crescent visibility, and calendrical reconstruction. In this regard, astronomical evidence functions as an external chronological framework against which historical reports may be assessed. The historiographical debate outlined above therefore serves as an essential starting point for the present study. Rather than assuming the correctness of

[19] Al-Ḥalabi, *Al-Sīrah Al-Ḥalabiyyah*, 81–82.

[20] Katz, *The Birth of the Prophet Muhammad Devotional Piety in Sunni Islam*, 1–15.

[21] Kharis, "Comparative Study Between Ḥadīth And Sirah Nabawiyyah Regarding the Birth of The Prophet Muhammad."

any single report, this research approaches the question through a combination of historical analysis and astronomical verification in order to reassess the relationship between classical narratives and the *Surakarta* Palace *Senin Pon* tradition.

3. Astronomical Verification and the Reconstruction of the Hijri Calendar in the Year of the Elephant

Astronomical reconstruction has become an increasingly important approach in the study of early Islamic chronology, particularly when historical sources preserve multiple and sometimes conflicting accounts. Since many formative events in Islamic history were recorded according to a lunar calendar, the reconstruction of conjunctions, crescent visibility, and monthly chronology provides an independent framework for evaluating historical narratives. Within the Islamic intellectual tradition, the use of astronomical calculation (*ḥisāb*) was not limited to determining prayer times and qibla directions but also played a significant role in calendrical calculation and chronological verification.[22] Contemporary scholars have similarly emphasized the value of historical astronomy in reassessing major events in Islamic history through objective celestial data.[23] Consequently, astronomical reconstruction offers an important complementary method for examining the competing reports concerning the birth date of Prophet Muhammad.

The reconstruction of *Rabīʾ al-Awwal* in the Year of the Elephant begins with determining the conjunction (*ijtimāʿ*) marking the end of *Ṣafar*. Based on ephemeris calculations employed in the original study, the conjunction occurred on Friday, 10 April 571 CE, at approximately 10:59 local time in *Makkah*. This moment represents the astronomical transition between lunar months and therefore constitutes the foundation for reconstructing the chronology of *Rabīʾ al-Awwal*. At sunset on the same day, the Moon remained above the western horizon with an altitude of approximately 2°42′49″. Although such conditions do not necessarily guarantee naked-eye visibility, they indicate that the crescent had already separated sufficiently from the Sun to make the beginning of a new lunar month astronomically plausible. Similar procedures have been adopted in contemporary Islamic calendar studies, where conjunction data and crescent parameters are used to reconstruct historical lunar chronology.[24] These findings provide the chronological basis for identifying the first day of *Rabīʾ al-Awwal* in 571 CE.

The determination of the first day of *Rabīʾ al-Awwal* carries significant implications because it establishes the sequence of weekdays throughout the month. Based on the reconstructed lunar chronology, 1 *Rabīʾ al-Awwal* corresponded to Saturday, 11 April 571 CE. Consequently, the Mondays occurring within the first half of the month fell on 13 April and 20 April, corresponding respectively to the 3rd and 10th of *Rabīʾ al-Awwal*. This result is particularly important because

[22] Zubair Umar al-Jaelani, *Khulāṣah Al-Wafiyyah Fī Al-Falak Bi Al-Jadāwil Al-Lughārītmiyyah* (Kudus: Menara Kudus, n.d.); Muhammad Maʾsum Ibn Ali, *Badīʿat Al-Miṭāl* (Surabaya: Percetakan Saʿad bin Nāṣir Nabhān, n.d.); Noor Ahmad SS, *Syams Al-Hilāl* (Kudus: Madrasah TBS, 1999); Noor Ahmad SS, *Nūr Al-Anwār* (Kudus: Menara Kudus, 1986).

[23] David A. King, *Astronomy and Islamic Society: Qibla, Gnomics and Timekeeping* (London: Varioum, 1993), 1–15; Mohammad Ilyas, *A Modern Guide to Astronomical Calculation of Islamic Calendar, Time and Qibla* (Kuala Lumpur: Berita Publishing, 1984), 211–34.

[24] Muhyiddin Khazin, *Ilmu Falak Dalam Teori Dan Praktik; Perhitungan Arah Kiblat, Waktu Shalat, Awal Bulan Dan Gerhana* (Yogyakarta: Buana Pustaka, 2004), 145–52; Budiwati, "Historical-Astronomic Provision Of Birth And Death Prophet Muhammad Saw."

classical Islamic historiography generally agrees that Prophet Muhammad was born on a Monday, even though disagreement persists concerning the exact date. By identifying which dates within the reconstructed month coincided with Monday, astronomical analysis narrows the range of historically plausible alternatives. In this respect, the reconstruction functions not as a substitute for textual evidence but as a chronological framework within which competing historical reports may be evaluated. Such an approach reflects the broader methodology of Islamic astronomy, where calculation and historical reasoning are often employed together to establish temporal certainty.[25]

The reconstructed chronology also invites a reassessment of the widespread association between the Prophet's birth and the 12th of *Rabī' al-Awwal*. While this date became dominant within later devotional traditions, astronomical reconstruction suggests that it does not correspond to a Monday within the reconstructed lunar calendar of 571 CE. Instead, Monday aligns more closely with either the 3rd or the 10th of *Rabī' al-Awwal*. Significantly, these dates are not without support in classical Islamic literature. Several historians and scholars preserved reports favoring the 8th, 9th, or 10th of *Rabī' al-Awwal*, indicating that the now-dominant 12th of *Rabī' al-Awwal* was never universally accepted. The convergence between astronomical reconstruction and some of these alternative historiographical traditions strengthens the plausibility of revisiting earlier scholarly opinions. As Kennedy and his colleagues have demonstrated in studies of Islamic historical chronology, astronomical data can provide an external framework for assessing the historical credibility of competing narratives without disregarding the authority of textual sources.[26]

The implications of this reconstruction extend beyond determining a single historical date. The analysis demonstrates how astronomical evidence can contribute to broader discussions concerning the relationship between historical memory and chronological accuracy. The reconstructed chronology indicates that the tradition maintained within the *Surakarta* Palace, which associates the Prophet's birth with Monday *Pon* on the 12th of *Mulud*, does not fully correspond to the lunar sequence derived from contemporary astronomical calculations. Nevertheless, this discrepancy should not be interpreted merely as evidence of historical error. Rather, it highlights the distinction between ritual chronology preserved within cultural traditions and historical chronology reconstructed through scientific methods. By combining classical historiography, Islamic calendrical studies, and modern astronomical calculation, the present study illustrates how multiple forms of temporal authority coexist within Muslim societies. This issue becomes particularly important in understanding why traditions such as the Monday *Pon* narrative continue to possess cultural legitimacy despite the existence of alternative historical reconstructions.

[25] al-Jaelani, *Khulāṣah Al-Wafiyyah Fī Al-Falak Bi Al-Jadāwil Al-Lughārītmiyyah*, 12–18; King, *Astronomy and Islamic Society: Qibla, Gnomics and Timekeeping*, 45–52.

[26] Kennedy, "Al-Battānī's Astrological History of the Prophet and the Early Caliphate."

4. Between Religious Tradition and Scientific Calculation; Negotiating Historical Truth

The discrepancy between the reconstructed astronomical chronology and the *Surakarta* Palace *Senin Pon* tradition raises important questions concerning the nature of historical truth in religious societies. Based on the astronomical reconstruction presented in the previous section, the chronology of *Rabīʿ al-Awwal* in the Year of the Elephant suggests that Monday corresponded more plausibly to the 10th of *Rabīʿ al-Awwal* than to the widely celebrated 12th of *Rabīʿ al-Awwal*. Nevertheless, the persistence of the *Senin Pon* tradition within the *Surakarta* Palace demonstrates that historical narratives are not preserved solely through empirical verification. Rather, they are sustained through ritual repetition, cultural transmission, and institutional authority. The continued observance of *Grebeg Mulud* according to the palace calendar indicates that the significance of *Senin Pon* extends beyond chronological accuracy. In this context, the tradition functions as a symbolic representation of the Prophet's birth that has become deeply embedded within the broader framework of Javanese Islamic identity and ritual life.

The authority of the *Senin Pon* tradition is closely connected to the role of the Javanese calendar as a mechanism for preserving continuity between sacred history and contemporary ritual practice. As evidenced in *Primbon Qomarulsyamsi Adamakna*, modifications in the calendrical structure were intentionally introduced to maintain the coincidence between the 12th of *Mulud* and *Senin Pon*. This finding indicates that preserving ritual continuity was regarded as more important than maintaining a direct correspondence with historical chronology. Such a phenomenon is not unique to the *Surakarta* Palace. Throughout Islamic history, commemorations of the Prophet's birth have frequently functioned as expressions of devotion and communal identity rather than as attempts to preserve precise historical chronology. Katz argues that *maulid* traditions evolved through devotional practices that transformed remembrance of the Prophet into ritualized expressions of piety and collective belonging.[27] Consequently, the *Senin Pon* tradition may be understood not only as a historical claim but also as a devotional narrative that reinforces the cultural legitimacy of palace rituals and religious memory.

The findings of this study further illustrate the distinction between historical chronology and cultural memory. Historical chronology seeks to reconstruct past events through critical evaluation of sources and empirical evidence, whereas cultural memory preserves socially meaningful representations of the past that contribute to collective identity. Assmann argues that cultural memory is sustained through recurring rituals, texts, and commemorative practices that transmit significant narratives across generations.[28] The *Surakarta* Palace tradition provides a clear example of this process. Through *Grebeg Mulud* celebrations, calendrical regulation, palace manuscripts, and annual ritual performances, the association between the Prophet's birth and *Senin Pon* has been continuously reproduced and reinforced. As a result, the authority of the tradition derives not primarily from historical verification but from its capacity to connect present communities with a meaningful representation of the sacred past. Even when alternative chronologies emerge through historiographical or astronomical analysis, the symbolic significance of *Senin Pon* remains largely intact because it operates within a different framework of historical understanding.

[27] Katz, *The Birth of the Prophet Muhammad Devotional Piety in Sunni Islam*, 8.

[28] Assmann, *Cultural Memory and Early Civilization; Writing, Remembrance, and Political Imagination*, 36–55.

Rather than positioning astronomy and tradition as competing sources of truth, the present study suggests that they operate within distinct yet complementary epistemological domains. Astronomical calculation seeks chronological precision through the reconstruction of celestial phenomena, while ritual traditions seek continuity through the preservation of culturally meaningful narratives. Both forms of knowledge have long coexisted within Islamic intellectual history. Classical works of Islamic astronomy, including *Khulāṣah al-Wāfiyah*, demonstrate that Muslim scholars employed observation, calculation, and transmitted knowledge simultaneously in their efforts to establish temporal certainty. The coexistence of these approaches suggests that scientific inquiry and religious tradition should not be understood as mutually exclusive. Instead, they represent different modes of engaging with the past, each operating according to distinct objectives, methods, and forms of authority. In this regard, astronomical reconstruction does not invalidate tradition; rather, it provides an additional perspective through which historical claims may be critically examined.

The findings of this study both complement and extend previous scholarship on *maulid* traditions and Javanese Islamic culture. Earlier studies by Adib,[29] Mu'azaroh,[30] and Pratisara[31] primarily interpreted *Grebeg Mulud* as a manifestation of cultural acculturation, religious symbolism, and the preservation of Javanese Islamic identity. These studies successfully demonstrated the social and cultural significance of the ritual but did not examine the calendrical assumptions underlying the *Senin Pon* tradition. Likewise, Budiwati's historical-astronomical investigation highlighted the importance of astronomical reconstruction in reassessing the chronology of the Prophet's birth, yet it did not address how local Muslim communities incorporate such historical narratives into ritual practice.[32] By integrating cultural analysis, historiographical examination, and astronomical reconstruction, the present study bridges these previously separate fields of inquiry. The results suggest that the authority of the *Senin Pon* tradition derives not from its conformity to reconstructed chronology alone but from its role in sustaining collective memory and ritual continuity.

Ultimately, the case of the *Surakarta* Palace *Senin Pon* tradition demonstrates the value of combining historiography, cultural analysis, and astronomical reconstruction in the study of Islamic historical traditions. The astronomical evidence presented in this article supports the plausibility of alternative classical opinions that place the Prophet's birth around the 10th of *Rabī' al-Awwal*, while the cultural analysis explains why the *Senin Pon* tradition continues to occupy a central place within Javanese Islamic ritual life. By bringing these perspectives together, this study contributes to a broader understanding of how Muslim societies negotiate the relationship between sacred memory and historical reconstruction. Rather than reducing tradition to historical error or elevating scientific calculation as the sole source of historical truth, the present analysis recognizes the coexistence of multiple forms of temporal authority that continue to shape interpretations of Islamic history in diverse cultural contexts

[29] Adib and Saddhono, "Paradigma Budaya Islam- Jawa Dalam Gerebeg Maulud Kraton Surakarta."

[30] Mu'azaroh, "Akulturasi Budaya Hindu-Islam Dalam Tradisi Upacara Grebeg Di Jawa."

[31] Pratisara, "Grebeg Maulud Yogyakarta Sebagai Simbol Islam Kejawen Yang Masih Dilindungi Oleh Masyarakat Dalam Perspektif Nilai Pancasila."

[32] Budiwati, "Historical-Astronomic Provision Of Birth And Death Prophet Muhammad Saw."

D. Conclusion

This study has demonstrated that the *Surakarta* Palace *Senin Pon* tradition represents a distinctive intersection between Islamic historical memory, Javanese calendrical culture, and astronomical chronology. Through an integrated analysis of classical Islamic historiography, Javanese calendrical manuscripts, and contemporary astronomical reconstruction, the study finds that the widely preserved association between the Prophet Muhammad's birth and *Senin Pon* functions primarily as a cultural and ritual tradition rather than as a historically verifiable chronology. The astronomical reconstruction of *Rabīʿ al-Awwal* in the Year of the Elephant indicates that Monday corresponded more plausibly to the 10th of *Rabīʿ al-Awwal* than to the commonly celebrated 12th of *Rabīʿ al-Awwal*. At the same time, the persistence of the *Senin Pon* tradition reflects the role of the Javanese calendar as an instrument for preserving sacred historical memory through ritual continuity and cultural transmission. These findings illustrate that historical chronology and ritual tradition may operate according to different forms of temporal authority while remaining equally significant within Muslim religious life.

The principal contribution of this study lies in its integration of three fields that are rarely examined together: Islamic historiography, Javanese calendrical studies, and historical astronomy. Previous studies of *Grebeg Mulud* have generally emphasized cultural acculturation and symbolic meaning, while astronomical investigations of the Prophet's birth have focused primarily on chronological reconstruction. By connecting these approaches, this article demonstrates how local Islamic traditions preserve and reinterpret historical narratives through calendrical structures and ritual practices. The study therefore contributes not only to the field of Islamic astronomy but also to broader discussions concerning cultural memory, sacred time, and the negotiation of historical authority in Muslim societies. Rather than positioning scientific calculation and religious tradition as opposing sources of knowledge, the findings suggest that both constitute complementary modes of engaging with and understanding the Islamic past.

Nevertheless, several limitations should be acknowledged. The astronomical reconstruction relies on contemporary ephemeris calculations and available historiographical sources, both of which remain subject to interpretive assumptions concerning early Islamic chronology. In addition, the study focuses primarily on the *Surakarta* Palace tradition and therefore does not examine similar calendrical narratives preserved in other Javanese courts or Muslim communities. Future research may expand this comparative dimension by investigating how different local traditions negotiate the relationship between historical chronology, ritual commemoration, and calendrical authority. Comparative studies involving *Yogyakarta*, *Cirebon*, or other regional Islamic traditions could provide a broader understanding of how sacred historical memory is constructed and maintained across diverse cultural settings. Further interdisciplinary collaboration between historians, astronomers, and scholars of religion may also enrich future discussions concerning the historical reconstruction of formative events in Islamic history.

BIBLIOGRAPHY

Adib, Ahmad, and Kundharu Saddhono. "Paradigma Budaya Islam- Jawa Dalam Gerebeg Maulud Kraton Surakarta." *Al Qalam: Jurnal Kajian Keislaman* 35, no. 2 (December 31, 2018): 271–96. https://doi.org/10.32678/alqalam.v35i2.1081.

Ahmad SS, Noor. *Nūr Al-Anwār*. Kudus: Menara Kudus, 1986.

———. *Syams Al-Hilāl*. Kudus: Madrasah TBS, 1999.

Al-Ḥalabi, Nūr al-Dīn ʻAlī. *Al-Sīrah Al-Ḥalabiyyah*. Yordania: Turast Publishing, 2013.

al-Jaelani, Zubair Umar. *Khulāṣah Al-Wafiyyah Fī Al-Falak Bi Al-Jadāwil Al-Lughārītmiyyah*. Kudus: Menara Kudus, n.d.

Al-Naisaburi, Muslim ibn al-Hajjaj. *Ṣaḥīḥ Muslim*. Beirūt: Dār Iḥyāʾ al-Turāth al-ʿArabī, n.d.

Assmann, Jan. *Cultural Memory and Early Civilization; Writing, Remembrance, and Political Imagination*. Cambridge: Cambridge University Press, 2021.

Budiwati, Anisah. "Historical-Astronomic Provision Of Birth And Death Prophet Muhammad Saw." *Al-Hilal: Journal of Islamic Astronomy* 1, no. 1 (April 30, 2019): 1–20. https://doi.org/10.21580/al-hilal.2019.1.1.5188.

Hambali, Slamet. *Almanak Sepanjang Masa; Sejarah Sistem Penanggalan Masehi, Hijriah Dan Jawa*. Semarang: Program Pascasarjan IAIN Walisongo Semarang, 2011.

Ibn Ali, Muhammad Ma'sum. *Badīʿat Al-Miṭāl*. Surabaya: Percetakan Saʿad bin Nāṣir Nabhān, n.d.

Ilyas, Mohammad. *A Modern Guide to Astronomical Calculation of Islamic Calendar, Time and Qibla*. Kuala Lumpur: Berita Publishing, 1984.

Katz, Marion Holmes. *The Birth of the Prophet Muhammad Devotional Piety in Sunni Islam*. London and New York: Routledge, 2007.

Kennedy, Edward S. "Al-Battānī's Astrological History of the Prophet and the Early Caliphate." *Suhayl. Journal for the History of the Exact and Natural Sciences in Islamic Civilisation* 9 (2009): 113–48.

Kharis, Muhammad. "Comparative Study Between Ḥadīth And Sirah Nabawiyyah Regarding the Birth of The Prophet Muhammad." *AL ISNAD: Journal of Indonesian Hadith Studies* 5, no. 2 (January 17, 2025): 76–88. https://doi.org/10.51875/alisnad.v5i2.509.

Khazin, Muhyiddin. *Ilmu Falak Dalam Teori Dan Praktik; Perhitungan Arah Kiblat, Waktu Shalat, Awal Bulan Dan Gerhana*. Yogyakarta: Buana Pustaka, 2004.

King, David A. *Astronomy and Islamic Society: Qibla, Gnomics and Timekeeping*. London: Varioum, 1993.

Mahmudah, Yumna, and Ahmad Izzuddin. "Kalender Jawa Islam Menurut Ronggowasito Dalam Serat Widya Pradhana." *AL-AFAQ: Jurnal Ilmu Falak Dan Astronomi* 5, no. 1 (June 21, 2023): 90–100. https://doi.org/10.20414/afaq.v5i1.6937.

Mu'azaroh, Hafshah ʻAbidatul. "Akulturasi Budaya Hindu-Islam Dalam Tradisi Upacara

Grebeg Di Jawa." *Maliki Interdisciplinary Journal* 3, no. 2 (2025): 464–73.

Muttaqin, Azmi. "Determination Of The Beginning Of Ramadhan And Syawal In Indonesia (An Overview Of Political And Historical Perspectives)." *Journal of Islamic Studies and Humanities* 7, no. 2 (2022): 131–47. https://doi.org/https://doi.org/10.21580/jish.v7i2.11882.

Pratisara, Devina. "Grebeg Maulud Yogyakarta Sebagai Simbol Islam Kejawen Yang Masih Dilindungi Oleh Masyarakat Dalam Perspektif Nilai Pancasila." *Jurnal Pancasila* 1, no. 2 (2020): 14–24.

Ricklefs, Merle Calvin. *Mystic Synthesis in Java: A History of Islamization from the Fourteenth to the Early Nineteenth Centuries*. Norwalk: EastBridge, 2006.

Tjakraningrat, Harya. *Kitab Primbon Qomarul Syamsi Adamakna*. Solo: Buana Raya, 1965.